

Expertise



Name: Dontu Andrei-Ionut

Country/City: Romania / Iasi

Occupation: Lecturer, Researcher & Mobility Specialist

Short Bio: Specialized in traffic engineering, vehicle dynamics, WIM-based monitoring and road-safety education. Active in international mobility programs (Erasmus+, INGENIUM, BIPs) and applied research in traffic simulation, propulsion systems and urban mobility optimization. Engaged in cross-border academic cooperation, mobility innovation and collaborative engineering projects

Institutional & Faculty Expertise Supporting My Work

TUIASI – Gheorghe Asachi Technical University of Iași

A leading Romanian technical university, with:

- over 200 years of engineering tradition, among the oldest in Europe
- 11 faculties covering all major engineering fields
- strong focus on smart mobility, sustainability, transport engineering, materials and energy
- involvement in Horizon Europe, Erasmus+, INGENIUM, CEEPUS, and numerous research projects
- over 16,000 students, 750+ academic staff
- modern laboratories and research infrastructures for both teaching and innovation

This provides a robust scientific environment for mobility, traffic and transport-related activities.

Website: <https://www.tuiasi.ro/>

Faculty of Mechanical Engineering – The Core of My Academic and Research Work

The Faculty of Mechanical Engineering is one of the flagship faculties of TUIASI, with strong expertise in:

- automotive engineering & vehicle propulsion systems
- transport engineering & smart mobility
- road safety, traffic engineering & simulation
- mechatronics, robotics, manufacturing & industrial engineering
- excellence research centres and accredited laboratories
- collaborations with major companies (Autoliv, Preh, Continental, Aumovio, PTV Group, Phinia, Schaeffler, etc.)



GHEORGHE ASACHI TECHNICAL UNIVERSITY OF IASI FACULTY OF MECHANICAL ENGINEERING



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- modern lab infrastructure: engine testing benches, vehicle dynamics rigs, vibration measurement systems, CAD/CAE platforms, Traffic simulation lab, Accident reconstruction lab.

The faculty forms highly skilled engineers in automotive and transport systems — a strong foundation for all partnerships I establish internationally.

Website: <https://mec.tuiasi.ro/>

Technical Mobility & Traffic Engineering Expertise

Traffic Simulation & Mobility Optimization (PTV Vissim)

With both personal training and faculty infrastructure behind me, I specialize in:

- microscopic traffic simulation
- roundabout, intersection and corridor redesign
- logistics, freight access and commercial area mobility flows
- calibration using field data (video monitoring + WIM)
- scenario-based mobility planning for municipalities
- conflict-point analysis & safe system strategies

Certified in PTV Vissim (Introduction, 2024).

Road Safety Research & Preventive Education

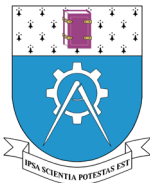
Part of the Road Safety Research Centre ecosystem, focusing on:

- road-safety audits and behavioural analysis
 - young driver education (60+ participants trained)
 - braking distance, reaction time, load influence and vehicle stability
 - joint programs with Romanian Police – Road Department
 - safety culture development in university environments
 - sustainable mobility and risk-awareness campaigns
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WIM Systems & Pollution Reduction Research

Based on personal research and faculty projects:

- Weigh-In-Motion systems for real-time monitoring
 - reduction of road deterioration and logistic pollution
 - load-optimisation algorithms for freight
 - integration of WIM datasets into PTV Vissim simulations
 - scientific contributions to environmental and infrastructure policies
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International Mobility & European Cooperation

With TUIASI and the Faculty of Mechanical Engineering as institutional anchors, I actively participate in:

- Erasmus+ BIP teaching/training programs
- INGENIUM European University Alliance
- mobility partnerships with universities in Italy, Germany, Portugal, Greece, Spain, Ireland etc.
- joint development of curricula in smart mobility, automotive engineering and road safety
- international conferences, events and mobility fairs

Teaching & Applied Learning

Courses & labs coordinated:

- Traffic Engineering
- Vehicle Dynamics
- Engine Testing
- Propulsion Systems for Automotive
- Technical Expertise in Automotive Engineering
- Simulation for Traffic and Mobility

Teaching centred on experiential learning, reflection, practical problem-solving & socio-emotional skill development.

Project Development & Technical Coordination

I have contributed to and coordinated numerous traffic engineering and mobility projects, including micro- and macro-scale studies for urban, residential and commercial areas in Iași. My work involved modelling access roads, pedestrian flows, HGV maneuvers and redesigning intersections using PTV Vissim.

I also participated in the TUIASI COMPETE project on pollution reduction and infrastructure protection through WIM-based monitoring, where I developed a new WIM sensor for urban traffic applications.

I contributed to mobility data collection for the Iași Sustainable Urban Mobility Plan and supported several traffic studies within the Road Safety Research Centre.

In academia, I coordinated and implemented educational projects, contributed to the development and upgrade of automotive laboratories, and took part in international training and joint research stays (HTW Saarbrücken – Germany; Instituto Superior Técnico – Lisbon).

Contact & Professional Profiles:

LinkedIn: <https://www.linkedin.com/in/dontu-andrei-ionut/>

ORCID: <https://orcid.org/my-orcid?orcid=0000-0001-8668-7701>